



## QUERY

UniRef90_A7HAK3
UniRef90_LOA681 UniRef90_A0A011P399 UniRef90 E1YEN9 UniRef90-UPIO00248490E UniRef90-K9TR40
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UniRef90-F8AWZ3
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V
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## R

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## 

SCCLT GK R A CPP P E DCG

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## 

## L



 VCL K GK R S A P P E D C G GE S GYY HLL K TL R D R SHP E H K D ML M


## 

$Y$
$Y$ V C LLK GA R A C P P E D C G GP W GY E N




## \footnotetext{ \section*{\section*{}} 

\section*{

##  <br> v

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##  <br> V

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| UniRef90-L0A681 | WL GGDFDPKAFSVDEAN |
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 A M G WT NS HLH QF AI H Y VD P R G LE H G M M D WA Q S Y S G I T I A K SMGWDNSHLHEFQVGERNYGVPDPEFDSFADVLPEDQIML AMGWTNSHLYE $\square R$ VK NTRWGVPDPDWGDEGPLDAGKARLV
 SF GWMDAHMHDFSTDGPYRGTVYHPEFMEEGDVDESAVSL SFD WY DGHLHSFYENGFGGTTYGPA $\square$ AEMDYQKNEAETLV VM G WE NY H L Y N F D T K D A R V E I S D D S F E F F P E $\quad$ Y Y D V E E T Q
 AMGWENQHLHMFRKGRKMFGQSDDEFVSNPNFLDYTVVRV SFGWMGSHMHAFSTDGPYRGTLYRPPEFMDEGRDESTVVSL AFNWWN Y H L HEF E DGG LRYGN A E G S A DG D P QVFDER QV R L

 VMGWNDEHLHTFEFGGRRYGHADDHPGFGPPDRDERAARV AMGWENY HLYSF E DDDP ESGEFGFFLDSFRDKEDSKK ER L

 AF DWDNSHLHLFRKPGKDGTTYSNDYVESAPWIHESTVVLL


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A M G WR D A HL WMVELD GVQYGDVEDMD DLGDP GA
SMGWCETHLH Q FVVARGGKAVDLVVTSDHNPKGFDGGRDTV
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 SFDWADAHLHEFRTGGRRGTTYGPANPYSEVDHFE VMGWED Y HL HK F V LG D NP WD S N A VS F VE Q T ELLRLA E GV R




AMGWGN Y H L Y Y C F E K G N L R Y G E E E L L D E F F D S S

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 A M GWQDCHLHRFSAGASRWAPYFRTEFDLSEGDDEGEVRLL A M GWRDS H L H L F E D T D P D R R WM T H E DLE ELLDGDP ET E WT L




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| UniRef90- ${ }^{\text {K2CQ32 }}$ | GD DRHKV |
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| UniRef90- W7W9W8 | SYVYDFGDYWDHRI |
| UniRef90 B6IPY7 | HYTYDFGDS WEHEI |
| UniRef90-F8GU43 | KVLGSATQFQYRYDFGDNWRHRI |
| UniRef90-K2ADR2 | DFQRDSVAFDYL |
| UniRef90-TOK | RGVTAFSY |
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| UniRef90-UPIO0047A3031 | GEVLSGTARKLDYVYDFGDDWDHEIQLEDTKPDAARKD |
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| UniRef90-UP1000374304F | SDIFSEEGQKYTY |
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| UniRef90-O1QJ51 | DDIVEDGAKTLRYLYDFGDGWEHTIKI ERL |
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| UniRef90- UPI0003B64E44 | GDDWTHEVRIEAVLEDY D |
| UniRef90-FOPM86 | FGDGWEHEIVLEKIL |
| UniRef90'UP | VDVLEDVGTNTLYLYDFGD |
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| UniRef90-D8K159 | GGRKAFVYDYDMGDGWRHDIELVKAVECEPGAK P |
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PTYOLRVE
PTYQLKIA

## LE K

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MlVPGYT
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D G

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| UniRef90－C3EDS9 |  |
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|  |  |
| UniRef90 Pliou034C7985 RVLDGHGGGPPEGCGGVGAF ERLRRLRDHDHSVAEEQLM |  |
|  |  |
| ef90－C4GHA5 HCVDGANHAAFENCGGVYGYAHILTILSNRDNPAYQEELA |  |
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| WOZCK7 QLISGERRAPFEDSGGLGGYQEDAEILANPSHTDHRSTKA |  |
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| UniRef90－A9B902 $\quad$ HCHAGSGACPPEDCGGPPGYRALLRERT DMLDPALHAAM |  |
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| TCLGGEGNAPPEDVGGEWGYDEFLAIISDKQNPDYEQMRE |  |
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| UP100046594B5 VCLDGARNCPPEHSGGAYGYAQLLEALAPAAQLAQRRRPD |  |
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| ENTR |  |
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| J7LX82 ${ }^{\text {a }}$ RVIRGKRRCPLEDSGGDGGYEDLIATLADPDREHVQGLHE |  |
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| UniRef90＿F2F0D： |  |
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| 36D72BB TLLDGGGMAPPEDVGGPVGYMNFLEIIHDPTHPQYTSTRE |  |
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| UniRef90_K6X0L5 | WA G GQFDPTAFDVDQTN |
| :---: | :---: |
| UniRef90-S6JHU9 | GGNFDPEDFDRRAA |
| UniRef90-A0A022L5M4 | EFWAGWDAEEFD |
| UniRef90-B1ZY05 | W LGPD Y NPDLCDLDKI N |
| UniRef90-UPI00047BBAC9 | W G $\square$ MQGYEEFDIEKIN |
| UniRef90-T01623 | WAGRKFDPERFDLDATN |
| UniRef90-Q82QX9 | LVAEGYDPAAFDRDA |
| UniRef90-UPI00040024D0 | WF $\square$ S P Y D M W WVN RELV |
| UniRef90-L7K2J6 | DPAHFDVDEVN |
| UniRef90-C3EDS9 | WDLLDFDPTSFDI QEVN |
| UniRef90_G8LZC4 | W GESQHYREFDID |
| UniRef90_UPI00036195 | WGPEQFDPNVVD |
| UniRef90-UPI000402B2DC | WYAFSFDPSEFD $\square$ EQVN |
| UniRef90-F6EDR9 | WWGEDYGPDKPNFSELN |
| UniRef90_JOBXE7 |  |
| UniRef90-UPI00036DB591 | TVGQ G Y D P Y T L P A |
| UniRef90-UPI000463723B | WLESKFDPAAFDLVAI N |
| UniRef90-B8HJF7 | WV DEPFDPAFWDVESVN |
| UniRef90-UPI00037611 | TLMEGFDPAAFDH |
| UniRef90-UPI00046CCA28 | AL GDDFDPAEFSLEEVN |
| UniRef90-TOHGX5 | ALGDDHD |
| UniRef90-D4VNU3 | WLGKNFNAHKFNAKKV |
| UniRef90-L7EJM8 | W GDSQDYKRFD ${ }^{\text {L }}$ DMVN |
| UniRef90-N0AVN4 | W GLSQGYADFDIACVN |
| UniRef90-UPIO00468C2FB | MLGEDFSPEALDEEA |
| UniRef90-A4SDX6 | SLGDGFNARAFDCASFN |
| UniRef90_B4WJG3 | QYG NFDPDAFAVADAN |
| UniRef90_V9H3S5 | WASKQNYKEGFDI ESVN |
| UniRef90-A0A011SQ6 | WVGRKFHPEACDLDQI N |
| UniRef90_UPI00028 | WS G N NLSAN F NLQMVN |
| UniRef90-R6X883 | WLGETYDPEEFDLEDAN |
| UniRef90-C5L |  |
| UniRef90-S9R1Y8 | WV ${ }^{\text {W }}$ |
| UniRef90-F4FEY6 | WVGDGFDPEAFDAGRVV |
| UniRef90-A0A024H547 | WFGRRFDATRFGVQAAN |
| UniRef90_U1YK69 | WLATGFDP S AF DLE GVN |
| UniRef90-A1SCM4 | WLPLDWHPDEF |
| UniRef90-C0GGX5 |  |
| UniRef90-K0YXL2 | WY D GRFDPEHFD $\square$ F EMN |
| UniRef90_UPI000404E08F |  |
| UniRef90-F0QZJ9 | WLGET WDANCFNLEETNL |
| UniRef90_W8T285 | W GESQHYREFD |
| UniRef90-UPI00035DD45C | WL D GY DPDELDV |
| UniRef90-UPI0003620E9C | WF W TYRPEHFDKGQVN |
| UniRef90-Q3B1N8 | WYGEGFDRAKVDILQ ${ }^{\text {L }}$ N |
| UniRef90-M1VMH5 | WGPADFDPNKIN |
| UniRef90-F813Y8 | WADGHYAFTGFRL |
| UniRef90-UPI000314F85C | WS R WWKPE FDI NWVN |
| UniRef90-UPI00037A33B9 | WLGENWDPNDFNLDVTN |
| UniRef90-R5BK03 | WLGERFDPDEFDPSIAN |
| UniRef90-UPI00026CDE2C | WAGRKFEPERDDLEA |
| UniRef90-IOU9L9 |  |
| UniRef90-A4F847 |  |
| UniRef90-UPI0003B519A1 | Y F G Liwn T DEFD $\square$ D GT N |
| UniRef90_C9RTQ9 |  |
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| UniRef90-B0K507 | W GEYQGYKDFNISEVN |
| UniRef90-UPI00034C7985 | WV EMLEPDEDD |
| UniRef90-F3Z | W GRYQGYKDFDIEEVN |
| UniRef90-C4GHA5 | ELTDKYDPTAFD |
| UniRef90-UPI000395ACC5 | DLMQDWDAKHFDKNEVN |
| UniRef90-A0A017RT22 | W GESQHYREFNTNFVN |
| UniRef90-W0ZCK7 | WVA GP WDLEDADLDGA |
| UniRef90-G0HAA6 | LFDDFDPEVVDAQA】S Y |
| UniRef90_UPI00047AC4FF | A |
| UniRef90-UPI000317FB75 | WAKSQNYKERYPKKA $\square$ N |
| UniRef90-C1AE32 | WVGP T Y D P A VF |
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| UniRef90-C1A2E5 | WPQTEFEPTRFETAEVN |
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| UniRef90_W4QSH4 | W GRYQGYEEFNLELLN |
| UniRef90-Q8RBY0 | W GKYQGYRDFDLEDVN |
| UniRef90-UPI0004651FF4 |  |
| UniRef90-UPI0003699215 | WCGGTFDPAAFDLVLAN |
| UniRef90-UPI00046594B5 | WP $\square$ P Q $\square$ D P ERFKAKE |
| UniRef90-M7AQV3 | DPAHFDVDEVN |
| UniRef90_UPI00035E5D6A |  |
| UniRef90-G8UK04 | WLGEKWDLNFFFDLEETN |
| UniRef90-UPI0002D4D53E | KVGYDFDPEHFDRASAN |
| UniRef90_14X |  |
| UniRef90-E9XQS4 | L G |
| UniRef90-UPI0002EC399A | WLGPDLDMTAFDLD DMNF |
| UniRef90-J7LX82 | WAEETFDPAHFNADKVN |
| UniRef90-UPI000427D9F3 |  |
| UniRef90-U5N3X2 | W $\square$ G GEFDP T A Y D $\square \mathrm{DEV}$ |
| UniRef90_C6KTP2 | TMADFVEQVVF |
| UniRef90-H012W9 | ILD R Q Q P HL L D D E $\square$ |
| UniRef90-F2F0D3 |  |
| UniRef90-Q647X1 | W $\square$ GGEFDPEHFDVEEVS |
| UniRef90_UPI00036D72BB | WA ESVGYKPDNI DHIN |
| UniRef90-G0HBC1 | DVAEAN |
| UniRef90 U4TJF8 |  |

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UniRef90-R5MIV0 UniRef90-R5MIVO
UniRef9O_C2EQF9 UniRef90-S2XHH8 UniRef90_U2D9E6 UniRef90-UPIOOO31832B8 UniRef90-UPI000467B18F UniRef90-U30XI4 UniRef90-A4T1E7 UniRef90_UPIOO02626C5A UniRef90-D3VG82 UniRef90-X0ZIO7 UniRef90-A0A022FV89 UniRef90_UPIOOO3818489 UniRef90_14DOW0 UniRef90-K9VUL9
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UniRef90-M5FBY2 UniRef90_UPIo003B4159F UniRef90-UPI000225B76E UniRef90-L7L4Q0 UniRef90_UPIO0026C7523 UniRef90 L102F5 UniRef90 UP100036C1B3C UniRef90-F7KFX8

UniRef90 M1LX69 UniRef90-U4TGH1 UniRef90-UPIO002F82041 UniRef90-F8L2S1 UniRef90-A4J8W9 UniRef90-O14VK6 UniRef90-H1ALZZ UniRef90-G8QS81 UniRef90-L1PW30 UniRef90-A0A014NX77 UniRef90_UPIOOO30E4061 UniRef90 R6TM22 UniRef90-UPIOOO36D4EE1 UniRef90-X1BCT3 UniRef90-R5YEK1 UniRef90-V2YBTO UniRef90-D3NYC5 UniRef90-M2NNB8 UniRef90-U4TQ27 UniRef90-D1XXT2 UniRet90-U4TK12 | UniRef90 W4VQ43 |
| :--- |
| UniRef90 | UniRef90-T1А9Е3 UniRef90-A0A024PML4 UniRef90-F8EY12 UniRef90-U4TGH5 UniRef90-S1KIQ7 UniRef90-U1N7K7 UniRef90-W8TA12 UniRef90-V4JL71 UniRef90-F4QMF1 UniRef90-UPIO0046886B9 UniriRef90_R4T7M3

$1{ }^{10} 20 \quad 30 \quad 40$
SAPSTIUQL|KAVI|SGTSPMI|WRR|VLVTADTTI|AQL|HY|ILQ|l|

SQP

YRLQTTLQDAPVAI
 T NMTYEGKAQLRDKPVMWRQFI KAVNLRIKLNGRRDAWRRITTPEDGTFKELHYIIQT KSYQFLVTLNNVKPKVWRRFLVPTTFDFFELHSVIQI SVLQLRIALRGLSPPVWRRVLVPEHLTLGRLHHVIQV

$K A Y Q$ Y $K$ I E L




T S A E VY R L H V WI R Q i T P M I Wh R L L V R S

V Y S L R I T I A D S K P R I WR R L T T K K S
 P E Q G L LVI K G Y Q F L I T KLKI NL E N MP F P I Y R K V VI P A DITTMSE L H LI I QV
 H TLL HL E L Y G S E P T I WR R I
$\qquad$ K N F
 A D $\square S P$ PM WR RLLI
TYQFKVKLRGSKPPIWRRVLVPAHFTVSGFHAVLQE

ELRGSLTLSQMHQVLQA T GK Q L Q F K WL K GLSP M W WR R VQV S EDATLRELH GI FQL TGKQAYKYRVTLDLEVYKAVRRIIVPAGDEFSQLHKVLQS
 $K A Y Q \square K \square E L Q N S D P L I W R R V I M P A G A T F N R \square H D V I Q N$ $K \square Y \square V K V A L R G \square S P M V W R R F R L S G G T S L A T F H Y Y: Q \square$ RHNHILQA
$Y Q L R D D V E G C A D P D W R R \square K I P A D I S F E D L H Q L I Q Q T$



 QPI YQFYSCLKDYRPEIWRRFQVAGNVTLARLGYIVMT $P$ P LQ L K V R L D $\quad$ SSPSAWRRLLVQASTTLQELHGILQV





 | I | $W R$ | $R$ | $M$ | $L$ | $V$ | $Y$ | $E$ | $A$ | $S$ | $T$ | $L$ | $H$ | $E$ | $L$ | $H$ | $Q$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $V$ | $W$ | $I$ | $M$ | $A$ |  |  |  |  |  |  |  |  |  |  |  |  |



$S \square N E$

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## UniRef90_UPIOOO4

 UniRef90-D1QS51UniRef90-AOAO22HCJ8 UniRef90_R6GZ80 UniRet90_J1YCA3
 UniRef90-D1W6V8 UniRef90-R5CVL3 UniRef90-R5MIVo UniRef90-C2EQF9 UniRef90-S2XHH8 UniRef90-U2D9E UniRef90_UPIOOO31832B8 UniRef90-UPI000467B18F UniRef90-U3QXI4 UniRef90-A4T1E7 UniRef90_UPI0002626C5A UniRet90_D3VG82 UniRef90- XOZIO 7 UniRef90-A0A022FV89 UniRef90-UPIOOO3818489 UniRef90_14DOW0 UniRef90-K9VUL9 UniRef90-G0JM05 UniRef90-F3WTD8 UniRef90-L1NW12 UniRef90_UPIO0029B14FD UniRet90_G2ZOM6 UniRef90-W1 1 ZZ5 UniRef90-W7C8R6 UniRef90-UPIOOO3080886 UniRef90-K1LDP1 UniRef90-W6S1D2 UniRef90-F6EJY4 UniRef90-M7MVP4 UniRet90 UPIO002484CD5 UniRef90-D1PWU5 UniRef90-UPIO00479A7B4 UniRef90_T1VR37 UniRef90-F21KJ4 UniRef90-UPIOO03632D3A UniRef90-UPIO001851326 UniRef90_Q9LCU7 UniRef90_B1XR15 UniRefotolowins UniRef90-K8DWV5 UniRef90-Q02B69
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UniRef90-U4TGH5 UniRef90-S1KIQ7 UniRet90-U1N7K7 UniRef90_W8TA12 UniRef90-V4JL71 UniRef90-F4QMF1 UniRef90-UPIO0046886B9 UniRef90_R4T7M3

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AFGWTDEYLLHRFDHAKPYGDHHTGGEWFSD DANTVTL SMGWTEEHLHQFIVRQGRQSTFYVDGTMPPDNKDGRRYCL MYEMKANHLFCVTVPWRDNVKDDETLSGVGSVFPDKSWRF VMGWENSHLYQFEQGNQUWTHPAYDIDSEFVRDQDCEAVL VTNFWPLHVHEFRLPEENMLVTNEPEDYEGQTVRKPQTLK SMGWQNDYLYDFNVKNNRNDPYGFDKDMLKDKYMHSKEVYY SFGWDNEHLHKFSDCYDDDMLSNDDSNMYRKSVDEQETKL SANAEFGHMYDLY N NLKCHQRFGGSTFDDESLDPEKAKV AFNWKDRQLYNFNVFDKSGRCLATLISRHEETYDTDEEVR SVGWTNSHLFNFLI PEEGSYEFSMYQRIISKQLLLARDVD
 ATNFQGYHLFEFDLPNDNDRVTYQEHQHFKKNRKEDEAKL AMGWENAHLYCFDI SMGWLDSHLHHFEI RGKGKRKETRDGIPDFDRMDDWEIPV VMGWADEHLHTFSIRGRRYG EAHEGVLQFSTAANELPL SFGDFDLHLHQF LDEA

 AMGWEDCHLWHFEAGDRRYGLPDPM WPESGMTAAKN KLL
 AMGWRDAHLFRFEVGEMEDPEEHYDHLS $\square G V F L R E A E D G L$ AMGWEDSHLYEFELDEAQTQULDGMVYDDMKAQQKYYQSL

 SFGWQDRHLHRFSSGGGPFDCPFDADAGEDEGVPEEEVR
 AFGWWNEHLYNFCDVPYSNGAEPREDDWQEPDYDARTYTL
STGWF A HEFEFCVGIPPDFDEDFACFASAPKRDAFQVLL VMGWGDQHAHQWVSVHHSTDNGPDRYDYQEDEFGEDEVRI IMNWENAHRYQFNTGAPYEEEDFFDFGSQFEEYDATDTFIL AMGWVDAHLHEFVTGDQHFGVPDPDGLYDQDVGDETSVGL AFGWEDAHLHRFVTSDPFAPLPPVDGCEEPGDRPEEDCSL AFGWSDTYLHRFVIHGNSYGIHHIGGECFSD DPHSVT TMGWEGDHLFSFDLRAVRYGSHELGMRSPDES LFDWDDSHLHDFEANRIVYSVPSAEDRDFDRDVDEKLAPDLC SFGWNDVHLHEFAWFDGPTGNDYADLDGPVERFDENDWS VFDWREEQPHLLFGNGHGR
AFDWAGYHSWRFAAGGAPFDEDAQQFDCEFEVEPADQMPR
LFDWDDVHLHGFHDPSDDIVIDDEGGFDPWGNHYNDFDTN LFDWDDVHLHGFHDPSDDVVIDDEGGFDPWGNHYNDFDTN
 AFDWKDCHLHDFDIDNEKGEREDKEISEYEDEVDLYNPGC AFDWEDSHLHGYQMKKVEGRSVNDVSIGGDDGFDELEEKL MGWEDYHLFSFEYGGRYFEFDGNVRF
VFNFEPYHLFEFRVINDEEAYQQHQYYKKNRKEDEEKMKN


 | $L F N W D N A H L Y Q F Y K F P K N D S R L F D K T E K D M E F G R E N K P L L$ |
| :--- |
| $A M G W S P R N D Y Q F E D A D Q R Y G Q P N P D ~ W P E D P T M D A R R Y S L$ | पFGWTHDHLYEFCDRKSGRRFQPSDDEYFWNT VMGWDNMYLHVFDFSGRAYSDGPRPGPEPFGD

D SVENL VFGWEDMHMHTFEAPQNRFETVVNSKDAYTEFFMEKKEKPV MYEMQASHLF CVDYFVKDDMDWDRPEVVHYETRDATAITL ALGWEGIHLYRFDLRAVGYGSTELALVSPRVVLDTFRLRIC AFDRDERWHHRFETAYGGFS VDAQSGEGDRDDDEVTL AFGWQNKHLYVF IPEYDDQVLYTLAADPNWEGEQTDASEA AFGWYNYHLHKFALLPPDEVFHKTPDDWNEPWKDERKLTL AFEWEEMHLHCLFQVTDKQNNNDEEALDSSLDALDEEEVLL
 VLGWSGQKLHGF INNGERRGYYDAEGNSSDRDERLLTL AFGWHNEHLHHFWSTDTRRLLYVPRMDPDLQVTQQLTNET VMWWDDSHLAKFEDADRKPTFRFVLSSEEVEDHKARKNVK VFNWNNYHLYDFADIDEKTKNTAARLVPTEEDLEYDESAV CMGWHDEDTHQFMVGKDFYQSGFGDKEMQERDADYDEARF AFGWWNEHLYCFGDKPYSQSLYENKEDWCRPDYDARKFT
AFDRDERRQHRFET


UniRef90 UPIO00466709D UniRef90_D1QS51 UniRef90_A0AO22HCJ8 UniRef90_R6GZ80 UniRef90_J1YCA3 UniRef90_14X3B8
UniRef90-R9CCK9 UniRef90-D1W6V8 UniRef90-R5CVL3 UniRef90-R5MIV0 UniRef90-C2EQF9 UniRef90-S2XHH8 UniRef90_U2D9E6 UniRef90_UPIO0031832B8 UniRef90-UPI000467B18F UniRef90_U3QXI4 UniRef90-A4T1E7 UniRef90_UPI0002626C5A UniRef90-D3VG82 UniRef90-XOZIQ7 UniRef90-A0A022FV89 UniRef90-UPI0003818489 UniRef90_14D0W0 UniRef90-K9VUL9 UniRef90-G0JM05 UniRef90-F3WTD8 UniRef90-L1NW12 UniRef90_UPIO0029B14FD UniRef90_G2Z0M6 UniRef90-W1IZZ5 UniRef90-W7C8R6 UniRef90_UPIO003080886 UniRef90-K1LDP1 UniRef90-W6S1D2 UniRef90-F6EJY4 UniRef90-M7MVP4 UniRef90_UPI0002484CD5 UniRef90-D1PWU5 UniRef90_UPIO00479A7B4 UniRef90 T1VR37 UniRef90-F2IKJ4 UniRef90_UPIO003632D3A UniRef90-UPIO001851326 UniRef90-Q9LCU7 UniRef90-B1XR15 UniRef90_19WIN5 UniRef90_K8DWV5 UniRef90-Q02B69
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## V

$R L L A G E R A C P P N D C G G V S G Y Q R L C L L M E K P A S A E A L E E M E$

 AV L D G A G D A P P E D A G GVV G F E H L L S V L A D E T H P D F E H M L W V C T A GK G A CPE ED C G GP WGYEDMK E N $V C T A A K K G C T P P E D C G G G P M G Y E M M M K E T L E K P N S A E A R R I R A$
 QLLEGKGTCPPEDVGGPPGYDEFKRVMKDKDDPEHAGMKA VCLMMGEGNTPPEDVGGDFGYDEFDKIIDNPKHEKYNDTYN

R
$\qquad$ EVTAGNGMCPAE

## R

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Q CLE GKGGTCPPE

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 Y LL E A S G Q T P P E D V $V$ G G V G G F V
L C A GNYVSPPE
SVLGGT GRGP $\square E G S G G P R G Y A E K L A V L A D P E H P D H A V V A D$ RAI GGRRAAAP P E DCGGGLRDEA D L K K K L L A D D P A F F D A L D L E L K LV KYKGDNFMEDS GGVWNWEMNEEV $V L I D G T R N C P P E D A G G V E G Y K A C \square E \quad G D L E$ TVV KHK R GNMEED S G GA WY GEESSEDY DEER
F CVV GF GD GAPE DVGG $\square$ P GYEEF LDE IMGNASHPEYKSMK $\square$ F C L T G R G A A K L E N S R G HCLK A VE $\square$ A P E E D S R GME E WREPVEM
C CI D G K R A C P P E D S G G V W L Y R E K L K M $F C L A \operatorname{GNRMPGAT} L A A D E T T K T L A L L F N A I I D H A D E T T T V V R E D R$ $K V I M D G A R C P P E D V G G A P G Y E M F L T T D R D T P D S E A D D X R Q$ V V V E F C G N NLIE D C G G I E R Y Q E II LS RD D LD DN

 $D V G G G L G Y K Q \square L E A M T N P D H P A Y K A M V E$ K V L K S K GPYMDED C G G L W G F Y E
$R L L G G Q G G P P P E G C G G V W A F R D R P E E D E N A G G D K A E D L H S$ RCIA GKRACPPEDCGGVGGYYNLLE IISNPAHEEYEEMME LM K A K GNNFVEDSGGIWG
$R V L E G E G F G D I D E C G G V S G L E R L A K A F Q K K K G R E Y Q E L S E$

 FCVTGRGANERED
$\square C T K G K G A C P Y E D C G G P Y A W Q A L K A M D V D P Y N D H D D D F D P$ FCLTGRGADKQEDSHYEED

RC $\square$ NAKN $\quad \square$ A P PEDSRG
C CVA GE GAAPP E H $\square G G A L R F R R F L A A L D K E N T A E Q A E A R Q$ $F C L T G R R P G K Q E N S R G Q$

T VTE WE GE T P F E DVGGMA GNQM QQ D L L D D S A HP Q HE E Y VE $L L E A R G K T P P E D V G G V G G F V S F R D I M L D P E H P E Y A E M K E$ $R L V D G E R A A P P E A A G D \square H R Y Q A L V H \quad D S R G S \square T$
$T \mathrm{C} \square K \mathrm{GK}$ G A C P E E D S G G VWE Y E D M K E
SCLD GERAAPPAECEDEQSYEMLLEARRDPYDEENEDLLE

UniRef90_UPI000466709D UniRef90-D1QS51 UniRef90-A0A022HCJ8 UniRef90_R6GZ80 UniRef90_J1YCA3 UniRef90-14X3B8 UniRef90-R9CCK9 UniRef90_D1W6V8 UniRef90-R5CVL3 UniRef90_R5MIVO UniRef90_C2EQF9 UniRef90_U2D9E6 UniRef90_UPIO0031832B8 UniRef90-UPI000467B18F UniRef90- U3QXI4 UniRef90_A4T1E7 UniRef90-UPI0002626C5A
UniRef90 D3VG82
UniRef90- X0ZIQ7
UniRef90-A0A022FV89
UniRef90_UPI0003818489
UniRef90-14D0W0
UniRef90-K9VUL9
UniRef90-G0JM05
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UniRef90_UPI00029B14FD
UniRef90_G2Z0M6
UniRef90 W1IZZ5
UniRef90-W7C8R6
UniRef90-UPI0003080886
UniRef90_K1LDP1
UniRef90-W6S1D2
UniRef90-F6EJY4
UniRef90 UPI0002484CD5
UniRef90-D1PWU5
UniRef90-UPI000479A7B4
UniRef90 T1VR37
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UniRef90- F8EYI2
UniRef90-U4TGH5
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WL GYRFDPELFPLKKA
DFIE QPDADTFDSDEVN
WLGDESDLTAFDLDDMNL
WL GEQWD
WSKEHFDP YNRAR $\square$ N
LVSKQNYQEVFDCESANL
GEVDDPKDFDLEAA
ELGERIEDYKLDLDVIN
EMGEDI DLSKVDI DEIN
WLGERUDLDDKFDIID N L N
WAEGQ GYQKFNLAKVN

WAKSQ GYKKFNLAKVN SLREG
ALRGPFDPRLVDL
WVQEQ V FRE YDPDFDN
WA GLS PDPEPFDKQLAN
DLRDEVDQRRFDRRAAN
WIF DVFNQNDFDRDEITN
WAQSQWYRN FDMELI N
QLQT WLDQNHFDRAQVN
ELLREWLTLDHFDRRAVN
WYGGPYNAHD ID
WLTE EPWDRDAFD DER DN
 WFGFNPDPEPFDKRHAN WLDPSWD APYDLDYAN WAKEQGYM KFNLSKVN WLGKK $\square$ DFENVSIEAIN

WYK SHHDPEAFDVEDAN
WLRYWDNFEKDDFAKLN
E L P Y D
WY GEKYNEMEVDLNVIN
WLGGLSSDKSYFDUDVVN
WVGREL
W EKHQQSREFDKEKDNL WVAEPFDPAF LDDTVVN FQGDD

WA
WNG PFDPEEFSLAK LTN
WNGDPFDPEEFSLAKKVN N WVK WVVGPMRYDPDD

WVGPWFDPDLFDAGAA WS G

WLDDSYDPGRFDKKEA
WAASQM YRKFD $\square \mathrm{DF} \mathrm{V}$ N

WDGKDFNPEYFD LKEVN WAKEQYFRE YDAELI N PLDDD DDTVRFNRPKVN WVGPGFDPELFDRRAAN w $V$ WLS F P WDENEFD $\square$ NA $\square$ N WHGDFFDPAAFECANVN

WV EK LDEDD LDMEA WLGGEYDPEAFNHVKDEF W $\square G \operatorname{DE\square D\square TAFD\square ND\square NY}$ WLGE E LDDTSFDVDDMNY EFGGGFDPEWFDKEVV
$T D \square D \quad P N Y F D \square D E V$
FAPETFNLEDADF

## E $\square$ GES F NPQ Q CDLSTCN

ASKE $\quad V Q F Y Q K D K \square N F$
W
पD D $\square$ T F NPAAFDHD
DGEDEDSAVIDDEEDN
E L GGGGFDPEWFDREVVN

UniRef90 R7ZTR3 UniRef90－J4WGX5 UniRef90－H3к9Z7 UniRet90＿R7EX83 UniRef90－D1BSD9 UniReffo－S3FE4 UniRet90－ UniRef90－A6TJU9 UniRet90－F5WUV7 UniRef90 W1 1 U4 42 UniRef90－T1JA37
UniRef90
U6ZT72 UniRef90－UPIO001851324 UniRef90 K9XYR9 UniRef90－V719E5 UniRef90－M5DZS6 UniRef90 UPI0002DCD5B5 UniRef90＿U9GX54
UniRef90－R2XZD1 UniRef90－UPI000255557E UniRef90 UPI0004708D98 UniRef90－C2EQG9 UniRef90－14X2M8 UniRef90 W4QJI1 UniRef90－18QZT1
UniRef90－G4L543 UniRef90－X1GND7 UniRef90 F7SE42 UniRef90－WOYR20 UniRef90－W3V1M9 UniRef90－SoRVK2 UniRef90－66CC09
UniRef90＿J2KVG3 UniRet90 W5Y3X1 UniRef90 x0PGV9 UniRef90－L8LW06 UniRef90－A6NUH2 UniRef90＿UPIO002EB126A UniRef90－B4VV49 UniRef90－Q03WS1 UniRef90－UPIOOO47CA9FB UniRef90＿G7V3R6 UniRef90 ${ }^{-} 5 \mathrm{Y} \mathrm{Y} 42$ UniRef90－K9WTK6 UniRet90－F8E4F3 UniRef90－R2P763
UniRef90 C9A4Z4 UniRef90－19C3Y6 UniRef90 UPI00036D1157 UniRef90－${ }^{-13 D S 75}$ UniRef90＿UPI00034DF3BB UniRef90＿KOR4K3 UniRef90＿G2Y7Y4
UniRef90＿S5GJP3 UniRef90－UPIOOO3734086 UniRef90＿K9UX24 UniRef90－A5VLE7 UniRef90－W6B403 UniRef90－W4PU13 UniRef90－Q0W5C0 UniRef90－K9F5T3 UniRef90－C8ZZNO UniRef90－F5YC32
UniRef90＿DODU02 UniRef90－E11E94 UniRef90 M1MTZ7 UniRef90－UPIo0036B629C UniRef90－U5URX7 UniRef90－K9H7M1 UniRef90－W6WN20 UniRef90－W0DFN6 UniRef90－EALK1 UniRef90＿UPIO00361CA86 UniRef90－E3DM21 UniRef90－V2X3N5 UniRef90－2X3N5 UniRef90－W9V2B3 UniRef90 X2K4J3 UniRef90－UPIOOO3700EEO UniRef90 L8N1P9 UniRef90 x1MWP8 UniRef90 UP100034DE97D UniRef90－UP1000248CB8D UniRef90－B8HM70 UniRef90 K6DOU5 UniRef90－AOAO11OEC2 Uniretgo＿AOAOMC
UniRef9O＿K1YC7 SKPTMQFYAELKDAPFPVWRRFQTLNDVRFSRLAYYLMT
 QKSLR LK $\square Q M K G V K P P M W R E V I P A D F N F F Q L H L A I Q A$ AKPSDWRRLDLRSDLTLDVVMHDLQD
 EKSYLIRVDLKGKPPIWRRLQIPADDTYGRLHRILQV KSY I RI ELEKSNPLIWRRVIMPAGATFNRLHDVIQN YI KI SLLEASPAVWRRVHISNQMTLNELHDVI QS SKKVLQLKI ILLGTTPKI WRRIHI PANFTFAQLHTTI RH NI YALKVALGGDSPMIWRRLQLSGNTSLADLHHTIQLD SGVYGFKVY D SNPVYEFYAELTDYEPKI WRRFQVMNNMTMAKLSGYI MT QAAVLKVELELGEYQAWRKVVVPGNYTMRELANVLQK

 YEI RAKLKGFKPLIWRRFVMNGNSSLETLSQALLL
 SKAVKVKAKLELERHNVWRELIUPGNMTFREFHKALQD TYE円RTKLRGFHPSTWRRF\｜TSGNSVTVLMRA\｜LF S LYTLHDQLEPFDPP WRRDQVTGDCSLRKLHHFI QA PAYTVKAA RDVSPMIWRRFRIQSDMSLGAFHFLLQF DMVYEMQVQMCAFKPAMWRRFIINGSSTVEDLEUA』LT

 AFRFRVTLRLDGRECWREILVPASLTFFDLHAVLQE VYDFKVT G GMSKVWRR1VASSQMTGWDLSRLILN FlLRVDLCPSNPVTRTLSCPANASFADLHEAL
 DA DYTFKVTLDDA WRRUAIPSNFNFDQVAAAFVQ YDQAYVITAKLADFKPDASRTFVIKGSSTDEELAETVIL
RTYQLYMK LKGTSPP解RRKTSGDSThAELHSATQC ESVY IFKVSILAKVWRAAIPNTLTLDNLSETILD AYQURIDLEGFKPPIWRRMLIPAGISYEQLHNMI QL RKVYTTHAELADFDPKTWRDFKITHTVTLQTLGYFLEL TASRTLILRVAYR YDSEYWRETEIADDQTFHDLHLAI QQ





AFFWHDSHLHEFTQGERRWSPVPEEF EALPEAGVLL MFEMAGEHLFNFKDTVYELPNVDDDRP $\square G G P \| I D A T A T K L$ SVDFDSDHLDMFRYKNQLGCTVDDSHPYASGSPSTDEVCL
 $\stackrel{S}{\mathrm{~V}}$

36D1157

 A F GWQ Y HL FNF DFKDFVVHIPDPTWAPAELYGVPEKNAK
 PVMGWTRNYHTFAFCGTGPAMWQGRRTDGRPTLDARDTH


 MFH GDLAA HLYDA I NE QTEE FYT QSED FVPG GMTKVK LDD A

LMM WE E E H L H VF R $\square$ GR K E Y G N K N Y D
AF NFDRDHLYQFSHKDRFGVLQTVIDPEDNRPMHTNETVI A F Q WQ D S QLY LIF LA GNN S $\quad$ DVPN TEPTNALV MF EMK DA H L L S F RETTVDTWTRVWELDPDDSPEGFSRK GHR L AFDWDNDHLYAFYMGKRPYDSKTEGGAPMSDCDQEADQTLL LF GWELSHLYDFSLPKPGARNSNPEFEPVLD Y LDWAK DVEL
AF GWEDTHLHDFLIDGMTYAMFEDDDFADPGTTADDRKVR MWGRK VMNAKTTKL

 AFEFDNDHLYAFFIGGNRRKGVYC KYAEYE GPDAEDT T I AF GWTNSHLYSFRVHQPDREYVGYVDDMGDGGEQULASQA


 AFGWSDAHRHDFLIDDDTYA QLD DDAGLEFMDLDDDRKAK

 AF K F D S DHL Y E Y R YK D R F G L E A R VG H P Y L E ES P S T D DV R I




|  |  |
| :---: | :---: |
| UniRef90 |  |
| UniRef90＿J4W | KHHLLTMPGYACTLEYDFGDGWEVEVT |
| UniRef90－W4QHQ6 UniRet90－H3K9Z7 | KTHFKKEKDRCDYTYDLGEGWQHEVILEKK |
| UniRef90－R7EX | TSYLSEKGDK冋EYVYDFGDDWIFKVSVEEVMDHPVDGAHC |
| UniRef90－D1BS | DEVLAAPGNVLAYLYDYGDNWDLTLRLEQVMP旨DDGRAA |
| UniRef90＿S3FE41 | LP SLI ESHQTLYYTYDYGDDWQHELILEKVI |
| UniRef90 W9ADM1 | D DYLQKYGELLYTYDFGDDWRFLI TLESU R |
| UniRet90－R2RXA6 | I DEDEREGVKI EYYYDFGCDWDHRILVEKIV |
| UniRet90 A6TJU9 | RPDVYNKYKNLRYNYDFGDDWHFTVKL |
| UniRet90 W1 J4Y2 | GLFLRDIGDNLNYQYDFGDDWL |
| UniRef90－T1JA37 | NNENKT |
| UniRef90－K6ZT72 | DDFGFD岛GDFTYTYNFYDHWLNDIRIEA |
| UniRef90＿UPIO001851324 | GDWFKDKWDKAIIYTYDFGDNWQHIIVLER |
| UniRet90 K9XY | GDIPLEEGGSMTYIFDFGDWWEFEVQLEKIEAHDSQPD |
| UniRef90－V719E5 | KHVLSSEAESMTFSYDFGDGWEDK1 LLENILKDKD |
| UniRet90－M5DZS6 |  |
| UniRef90－UPIO002DCD5B5 | CLQTSVNITFIYDFGDS |
| UniRef90－U9G | RRM LKEGERLRYLYDFGDSWQHVIAVETHEPCDFTGTWC |
|  |  |
| UniRef90－UPIO00255557E | RGGNSHMY Y M |
| UniRef90－C2004 | TSEVVNEGKDKLLLTYDYGDNWEGEVNVKKTVYKNVGLKYP |
| UniRef90－14X2M8 | VRKFLEKHKELVYSYDFGDGWQFRIKLETIVDDYY F |
| UniRef90－W4QJ11 | FAQRLKEMPELRYTYDFGDDWQFT |
| UniRef90＿18QZT1 |  |
| UniRe90－G4L－543 | 兂 |
| UniRef90－XIGND | AVKFFEQGDKLILSYDYGDGWEFEVNIKKVMDYEKGDKYP |
| UniRef90－W0YR20 | VLK S DRLRYLYDFGDS WQ |
| UniRef90－W3V1M9 | ENRDKFTYE |
| UniRef90－SORVK2 | QEGAKDEYIYDFGCDWEHQ MVEKVLNEA |
| UniRe90－J2KGG | QGAVFSYHYDFGDGWRHTVAVQEFLTLTASTPKQG |
| UniRef90－W5Y3X1 | GDELTYTYDFGDNWRHR |
| UniRef90－X0PGV9 | NQVATNIGAKFLMTYDFGDGWEDELKIESID |
| UniRet90 L8LW06 | ADLFLKEGEIMTYIFDFGDWW |
| UniRet90＿A6N | GE |
| Un | KHGELVYNYDFGDGWQFR】KLEDIVED |
| UniRet90＿B4VV49 | GDHWEFDMQLEELQPPNA |
| UniRe990 ${ }^{\text {do3WS1 }}$ | GHPELTK |
| UniRef90－G7V3R6 | DSVFAPGHREAVLNYDYGDGWKVSIV LVVDIMPELKVRDLP |
| UniRef90－F5Y｜42 | GELNLRGGNALIYEY GGKWTVKILLLSRHEPGPGEQ |
| UniRet90＿K9WTK6 | GDLPLEPGGRMTYLYDFGD |
|  | SEIFKRKGSKIKYMYDFGDSWLLE： |
|  |  |
| UniRef90＿C9A474 | YDMGADWTHKIKI EKVLEDHPDPVVP |
| UniRef90 19C3Y6 | DFG |
|  | L GDVFPKVATARYYYDYGDNWI |
| UniRef90－UPI00034DF3BB | GDLPLVAGALMEYDFDFGDWWEFQLQ |
| UniRet90－K0R4K3 | GDGCIYNYDLGDCFYHLLRLEEVVPELASTGRV |
| UniRet90＿G2Y7Y4 | SETLLNQIIKTILYRYDFGDDWEHVMVCGGRADPTEN |
| UniRef90＿S5G．JP3 | DDFAFDTGDRFTYEYNFFEHWL |
| UniRef90－K9UX24 | GELPLKTGNHLQFDF DLLD |
| UniRef90－A5VLE7 | TVSLLNEKDKLTIHYDYGDGWEFKLHVQK ITQPVTN |
|  | VLKPGSRFLYRYDFGDGWDHAIVVEKVETESEPWGAA |
| UniRef90 N1MSS5 | QVLADTRRKTFRYLYDFGDAWEHSVKYERISPASPHLTMP |
| UniRet90 Q0W5C0 | TEKALKNVSEFTYVYDFRSEQVVKISVEAILPP EDQPYP |
| UniRef90－K9F5T3 | GDDPLAPGASMTYLYDFGDRWKFQVQFEKMAPSDPKLGQP |
| UniRef90 C8ZZN0 | IDHDFQTCQTLITYIYDMGAD |
| UniRef90－F5YC32 |  |
| UniRef90＿DodU02 | ads |
|  |  |
| UniRee90－M1MT2 |  |
| UniRef90－U5URX7 | FLTYRYDFGDGGI |
| UniRet90－K9H7M1 | GDDWHHR】IVEAVGTADPNLAYP |
| UniRet90－W6WN20 |  |
| UniRef90 Wo | GQTFDYEHDFGDGWK |
|  | DI LREVGQQMSYTYDDGDNWRHVITVVEVLPEEESTGRA |
| UniRef90＿A6LXA5 | ASLNLYKGERLLYLFDFGDEWEFNVELAEVNEAPV |
| UniRef99－${ }^{\text {UniRefo }}$－${ }^{\text {USM21 }}$ |  |
| UniRef90－V2X3N5 | YHVYDEGGRYYIYI YDSEAEWQHSVFFAGERESFF |
| UniRef90－V2X3N5 |  |
| UniRef90 H3KCL1 |  |
|  | SDVLHTKQPSLMYGYDEEDGWEHLIQLEKTLPYFADDDQP |
| UniRef90－X2K | VHKVLRPGARMLYRYDFGDGWDHDIVVEKI ETIDREP |
| 矿 | GELGLEEGQQ LY |
|  |  |
|  |  |
| UniRef90－UP100034DE97D | GDLPLHPGSTMIIFHFDFGDDWEFQVVLEQVEPPNPKVKKS |
|  | YVQEEYAVFTYVYDFGDDWQ |
| UniF | GDLGFKPGQEFTYYYDYGDEWQFKI EVED KPGNPKSNQ |
| UniRef90－A0A011QEC2 | GEAGLFPRQLVEFRYDFSDDWRFDVLVEKLEPSDIRRKAA |
|  | VDLVKQKGRTI RYLYDFGDGWE |

UniRef90 R7ZTR3 UniRef90 J4WGX5 UniRef90－W4QHQ6 UniRef90＿H3K9Z7 UniRet90＿R7EX83 UniRef90－D1BSD9
UniRef90 S3FEE4 UniRef90 W9ADM UniRef90－R2RXA6 UniRef90－A6TJU9 UniRet90－F5WUV7 UniRet90 WIJ4Y UniRef90－TIJA37
UniRef90
K6ZT72 UniRef90 UPIO001851324 UniRef90 ${ }^{-}$K9XYR9 UniRef90－V719E5 UniRef90－M5DZS6 UniRef90 UPI0002DCD5B5 UniRef90－U9GX54 UniRef90－R2XZD UniRef90 UPI000255557E UniRef90 UPI0004708D98 UniRef90－C2EQG9 UniRef90＿14X2M8 UniRe990 W4QJ UniRef90－18QZT1 UniRef90－G4L543 UniRef90 ${ }^{-}$X1GND7 UniRef90 F7SE42 UniRef90－WOYR20 UniRef90－W3V1M9 UniRef90 SoRVK UniRef90－F6CC09 UniRef90－J2KVG3 UniRet90－W5Y3X1 UniRet90 X0PGV9 UniRef90＿L8LW06 UniRef90－A6NUH2相 UniRef90 B4VV49 UniRef90－Q03WS1 UniRef90－UPIO0047CA9FB UniRef90 G7V3R6 UniRef90 ${ }^{-}$F5Y 142 UniRef90－K9WTK6 UniRef90 F8E4F3 UniRef90 R2P763 UniRef90－C9A4Z4 UniRef90＿19C3Y6 UniRef90 UPI00036D1157 UniRef90－B3DS75 UniRef90－UPI00034DF3BB UniRef90 KoR4K UniRef90－G2Y7Y4 UniRef90－S5G．JP3 UniRet90 UPI0003734086 UniRef90 K9UX24 UniRef90－A5VLE7 UniRef90－W6B403 UniRef90＿N1MSS5 UniRef90 W4PU13 UniRef90－Q0W5C0 UniRef90－K9F5T3 UniRef90 C8ZZNO UniRef90 F5YC32 UniRef90－DODU02 UniRef90＿E11E94 UniRef90－M1MTZ7 UniRef90－U5URX7 UniRef90 K9H7M1 UniRef90 W6WN20 UniRef90－WODFN6 UniRef90＿E1ZK10 UniRef90 A6LXA5 UniRef90－UPIOOO361CA86 UniRef90－E3DM21 UniRef90－V2X3N5 UniRef90 V2X3N5 UniRef90－H3KCL1 UniRef90＿W9V2B3

ПCTEAVAACPPEDCGGPWGFAEYVEATNDPKHPEYERNRE TCTEAVAACPPEDCGGPWGFAEYVEATNDPKHPEYERNRE RVIA GEGYGI IEDCGGTWGLNEIEKAFQKGSGEAYENYSY YCLKADRPAPGEDPFS TRWKGDLDQPLEDTGGI WAYTTIRDAFAD
RCVDGRRAAPPDDSGSVRTAGELAEVLD
IVTEWEGETPFEDTGGMAGNTHLQDILNDPNHPQHEEMDE TLLDGAGTAPPEDVGGLLGFASFLKKYHDQKDPDHDDVVQ ICVKAKGDTPMEDSRGNELW
TLLDGVETAPPEDVGGDHGFYEFGKAYRDPKHPEYEDTKT TVIEAEGVCPPEDVGGVSGYEYLNNTLIAGDEEEDNSLLE RCVDGRCSTPSE
 NCVKAVTNAPRE
AII DGYGEAPPQYPD
RVLDGFGYGDIEDCGGPHGLEEDARVEKSKKGERYQELSE SFLEGEGTAPPEDVGGVGGFSEFMS\｜TSNPDHEEYESMLE KTLESHGEAPVQYYQDDEDWEE EVLDGAAPALP
DCMKAKGETPAEDSRGNESW
RCVAGASAAPPEFTDGPMRFRRYTALDRGADAEREDALR TLLDGEGTAPPEDVGGPPGYTSFLA\MEDPTHPEHDHMKQ QI SGKGLGDIEDIGGVWSLQDYYDTPKAQLDP DLLD TLLDGAETAPPEDVGGUPGFYEFQQDYRDKKHMEHEEMRD VCLDGEGDAPPEDUDGETAYENFLKADENVKAPQNFVVRI
ПCDGGDRACPPEDCGSVSGYYNVIETMSDPKNDDYEEMKT
FCLSGQGMPDVTQYDETEATपKLLEATVESDDSTTFGDपQ VCVKAKGDTPFEDSRGEEIW
RILAGHGYGHDDDIGGIDMLQEYYDTPDDEQDP DLLD SCIAGERARPPEDVGGVSGYERFLEITADREDPEYDETUR TLVDGQGAAPLEDCGGVGGWERVLDD！D
KVLEGKGYGLIEDVGGPGGLAAMAAAFKKGSGDDYDQFSE AII ESRGKAPAQYPD
RVLAGEGYGDIEDCGGTGGLERLAEAFRQKNGDDYVHYKK TLLDGAETAPPEDVGGDPGFYEFLR DYRDEKHPEHEETKA QILKRYGEAPSQY
PTIAGQGFGLIEDTGGLGGLQEYATAYKAGNDDRY HE TVTEWVGETPHEGVGGWEGNQMIRKDSDDPTHPEHEEYRE RVTAGAGYGUVEDIGGTYGLYQLEDAFQDHD $R C V A G A E A A P P E Y \amalg D G P M R F R R Y L A A D E Q G A E T E R Q M A D R$ KTLEDHGEAPQQY
VCl $A$ AYGTSPREDSGGMMVY LDMVD
VCLKARGETPLEDSRGEDLW
VCiKAVGDVPPEDAFDDDFREPDDREDNEMLLDYWETGE
QWDGAGDAPPEDVGGVYGFERFLDTपGNPEDEEHDGMVE El IASKGKAPQQYPD
EI LGGEMRCPDEDGDGCAAYQEKVRVASDPTDSERRGT $\square$ N ELLGGEGHGCAEDVGGSYGWIKLIEAYDNNPTKDQRETMD FCMSGHGMPGATAADEADKTLAFLEAVVNANDSTTVGDDR AVLHHSSTDP DENVGGTEGLKETMAVLNNKQHPEYARTFE KILETHGEAPTQYGEEEEVY
HVQKARGYGDIEDTGGVGALEQYYDDYQKGQV DPDLLD QI D GARACPPEDVGGPPGYDAFLSTLNDPNSEEAEHYRN LILDAVGMRPPEDCGGPWGYAEKLEALGDPHHEYYEEALD VCLSGKGACPPEDCGGVYGYENMKADFRESSGEQVESYRE VCTGGQRPGPGEYEMLWGDEEPPKRKRRPSFDPE
QVLATQGEAPQQDENSWDGEWDAGDW $R C V A G E G A A P P E Y D G G P D R F R R F D S A D E G G N D A E R K G A A E$
$R V I D G A G G D L E D G G V D Q L G E D A S L V K R D G V T H R S E L N$ RVVATHGGTLRQYD
HIVRASKACPPEDVGGPGGYELIRE【LA QGPEKAAAADP RLVDGARRGPLEDSGGLPGYEEIMDALADASHPDHDEYSA
R पF DGERCGRPEDVGGVPGYFDF回GATMPGDPGHQRपPT
QCLAGARACPPEDCGGVWRYENLVEALLDPKHREHEDLRN AVLDGAMACPPEDGSGSGSYQEFLDQMLDQRTAEYRTRMH MIIESKGKSPHQYSGGWGLY
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SF LEGEGTAPPEDVG GFSEFMRDISNPDDEEYESMVE
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LGKE DPAHFDVASNN
WA ES LYFREYDPDWTN
Wh GLSPSLEPFDKQEAN
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WLG
WAFKEYDPED

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WAKG
$\square A A A R$ GYREFD $\square$ A $\square$ V
WVGENWHPEKFKRNDVKF WGGEK $\square$ D $\square$ DKFDKDGLN

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WLGEDFDपSQFDLVTTN
WLG
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YV
ALGDDHDAHA
WAEDQ
VLGR FDPAEFD $\square \mathrm{E}$
WFEEE
LIFDDDDAVRFNRNKTN KARTMNYRERYPVTAUN

WLGGEDD\NAVDTNE【N WVGPGFDADRFDLRAAN TLGDDHDPNA WLGENWDPTNFD■DEVN

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D G $\square Y$ QFK ${ }^{10} \mathrm{~V}$ LGRA





VY T F K VQLVEFEDKDWRD DEDT S A S SVAK L A Y S I I A


LQLKVR LLDTKPPVWRRFELPSSFTFFDLHNLIQA


$P T L R L R V E L L D V P R P V V R \| L D I P V E T T L H G L H L V L Q K$

$$
\begin{aligned}
& \text { MVWRRVQVPSTMTLREFHGVLQV }
\end{aligned}
$$


 $F S$ GTY Y $V$ L L GMHDDE DLI WR R I


$F R \square E L L D V V P L V W R R V L V S N Q W T L A S L H H Y L Q W$ I Y R F R I I L D D I E E DV F R DI EII E K T A TAE E FHNS I T Q
 Y QL K V I P AFNSNI YR LLLELD GS CTFAAL S DLI LDD T F H I Y P K E DT P P V WR T L S V P S D C S F R K L H R A L Q


 NAYALMFEVMETHEPVWREVQVPTGGNFYELHLI RE





## $\prod Y R F R V I L D D T E E D V F R D L E \prod R K T D T L E D L H N \square I T Q$






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 VMGWT DSHLHRF\|IHGKDYG\|A Q I G GMWFS D AYQFDF DHLYEFSYRDRTGRSSTAAHPACEDPPFTS DMKV AF GWQQAHVHMFAFYRQKAKKNTHYYYRFHD DYDERKYRH
 A M GWEK E T V V S F L L P H K K MV I T E S E E Q A H G E R L K E A A V V V AF LIWEQSHLHSFRLQYE DTSMDFPD DEEKPGMREDERGVQL



A M GWA G $\square H L Y$ QF $\square$ VH TVCYGSWE LTAESAD $\square$ MR DA LIK


AFDFT AEH LYMFSRNRKPYDK D GYYSPYDEEGRRA D QET L
 AYDFFD DHLYAFFMNGQPWRGEAYWSPNNDEGPYADK $\square K L$ S F
AFEFADDHLLYAFFMDGKRWRKQAYYSPNDDETQVV$T A E A Q L$


 AFEFDKDHMLMFS L NRKAYDPNG DYHPMGKQGKRADRVRL


 VMGW P GA DGEF RVVYDRRTWSHDGFSAADDLEVVEEADE EQ L
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AFGFEGSEMASF
SFGFAGDEMASYLS

A
A
A
A
A
$\stackrel{A}{\mathrm{~A}}$
M D MDYH L Y D AFGFDDGTEMAS
AFEFDHDHL


## A



## S

SFGFE GQEMASF
AMGWARNYHGY
S CGYK D D QMTS
AFGFAGDEMASF

A
S
A

S

## A

AF GFD GAEMASFYKSDDEWNQGEEYSLLFDLSSDGQES E



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|  | GWEDKETWLYLYDF D |
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| UniRef90- F5LACO | GEWLQHVGDTCVYTYDFGLEWQYVLEVKA |
| UniRef90- Tok | NLNLEIKQKFLYLYDFGDEWTFSIQVEKILETDD |
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| UniRef90 J4UAH5 | S |
| UniRef90-_8t509 |  |
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|  | KQKLIYVFDPLTDRSLFUELEDTGKARKPVC |
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| H2BR | GEIAEPE |
| UniRef90-E2LHQ9 | , |
| UniRef90 A9DIC4 | EDQTRLYVYDFLNMWTFLVELLAETAAPMNGQSYP |
|  | YLFD |
| UniRef90-UPIOOO36B7 | YVYDFNAWWRHE |
|  |  |
|  | EEEPKLVYVYDFMSMWT FFVELVEDDEEE |
| UniRef90-R6UCG0 |  |
| UniRef90-uctur |  |
| UniRef90-D1C5×0 | PLPGPSGTKEFLYIYDFGDEWHFGVQLQRTSDAVDPDADY |
|  |  |
| UniRef90-R5F518 | VDPVKRNKYLYLYDFGDEWDFYTTVMKT |
| UniRef90 M3D9U6 | YDYGD |
| UniRet90-H7FSIO | P |
| iRet90_COBJF3 | A |
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| UniRef90-HYYG88 | GVT ${ }^{\text {P }}$ |
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| UniRef90_R7 | EKMKLAPGDELTMIYDYGCNWEFQITFKRPMEPGKGNHYP |
| ef90-A6EPD2 | TLWEKQTKLTYVYDFLYMWT M MVELAE VEPEPG |
| UniRet90 FoYJZ2 | ELLREPGDR GYTYDLGDFFEHVIT E EVVDASASTGAV |
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| RRef90 UP100040DF2B5 |  |
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| URRef90_S7RVA0 |  |

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YVIDGQGRGILEDVPA EEFGAIVAKTDAAGKSDYRE YVAGGKGKGIIEDTSPYELAEIMEKTNKDG\LPKDTDGYS TLVRGHGTSPLEDCGGARAWASILRDDD
ELLEGKGMCPGENMGGSFQYSDFLSEYDSMSHHDNASART CCIGGDGNCPPEDSGGPE
RVGKKIGAAPPQYP
KLKMM $\backslash$ GDPVPED $\square G G E A G Y A Y F M E A \square S S P D H T D H E F A \square$ K WV
LCVKGKGTCPVEDSGGVWGYTEMDEEACSPTNPDRAEDHQ CCTKANWDPAQD
IILETRGEAPEQY
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RCTGGDGDCPPEDCGGPETFMMQTD
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NLMYVHGQDPAEAPPADF
YV DGGAGGMDDDПSG YEПKE UVDNTYKKGFSDYDF YLLSGTGGKIPEDMGGDPTYDERIQQLTGNARVEDDDDRG ITFRQGELCQYPNWDEDWENDEDWDGEEDSYDEGEFDE

TIETRGEAPD
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NVMY自HGQDPDQAPDKEFKADE पDDFNEGENKDFMDDDE SRKEGHAPKQTVDFDEVMAKT艺TDSQDRDDLDEEDYGDRE RCLAGRRAAPPQYLVNGWNYTELLRLAR
ALVESKGPNPVEFENGYVAYEDLPDEQKHDPGE EV TG G GMCPGENMKGPHNYRDFLKDYDQGD
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## NLLFAH


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F $\backslash$ AKSVGEAPKQFGNVFTPTEПPAAAVDDDFDFLNQMEL R DYGGPVPDENVGGPKGLERTLA LLGDRRHPDYVRTFE
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ITVFR
11
SLDFAHGS DPAEAPEKNFESDDFNEFEDDMDEEDYDNFRE LFSKAVGYAPAEDAGGVRGWERVKEAFAAERPTEQLDLRK MVLNTVGS $\square$ PAEAPEKNFVADDFNEFEDEFNDFDVDEE NLMF
VCVAGARSAPPEDCGGHYSYWRGDEVLADDQESEHDEE $\square$ R NLMFVHGQDPAEVPERN FEADDDFDDFDEFEDDMDFDD DLLFAHGEMPASAPEMAFGTDATDDGYGEFDDDYDEEDLD NLMYVHGQLPDQAPEKTF
ELLFSH
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L H G GKFEPDD
WDYREFD LDEDLS I

SGGSFDPELFDRRAAN

D S VH Y D M D A V N
$W \square M \square D \square A E R A Y D \square K \square D N$
RYGENWDYRRFDLKAEN
GEETVWDYRNFDLAYCN
SFGKPFDPDTFDLAGAN

W

H $\square$ M A D $\square \mathrm{D}$ VREYN D E A $\square \mathrm{N}$

WS T WK F DPEEFD $\square$ DEA
MK M $\square K$ WD Y R $\square$ F D LIE Y S N

T PGYEYDYRNYDKEADN
F I D HVDPT

YEDLLGFDENW
FNEDD $\square$ DMESFD $\square$ SEGN

DMDSDFD LEDYD

Y D S $\square$ N F DENW

W $\square E$ MQH $\square$ P F DEEMV

WF EKQADPARWDKDA\N
MFEGDDSFEDFGFEE

VAEETVDFEEVDPDEV
KVRMMNYRERYPMTAIN
M F N K E LS Y K Y F D LK D $\square$ N Y

Y G DQSFDPEEFDPD
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WATE

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1 TYKFR1TLDGEEDVIFRDEVEGNSTLEDFHNAVIS ${ }^{20}$ LNS VYRFTUSDEADDFIREIQUDDATFFELHEAILK VYMFRVILDAEEDIFRDIGKEDDTLEDLHNAIVN RQTFRVRVELADYSPQMWREFEVSGDTRLDKLCFQVLT
 VYRFTLISDEVDDFI REIKI DSEATFHDFHEAVLK RTYQLRVSLDLNQTYVMRRFTI PAHFTFHQLHEVIKI IYRFRVAFEDYDAV REIDUKSNQTFEDFHYAUHK
VYKFRVIL DAEEDTFRDTALEDDTLEDLHNADVN LH L RMALKDVKPTVSRVLRVPAHLSVAEAMPDILK
 ■YRFRVIL DAQEDVFRDUEMLHNSTLEDLHNTUVQ VYKFRVIL DTEEDTFRDTATLEDDSLEDLHATVN




KTYQFRVS $\|$ IG $\square$ PK DVVIK
$\square Y K F R V I L D A E E D V I R D \backslash A \downarrow E S G D S L E D L H N T \square T Q$

$\square Y R F K V S F E D Y D D V I R E \square D T K S N Q T F K D H D A T H K$ AI ELIDTKPALLRNARVYSDDSLADLHQVIAG TEEGAY $\square F N V S G G A S C K \square A V P A N \square S L D E L A Y G L A$

AHQFKVSLG APCWRRTRCGGETDDAALASTI LT TYKFRITFEDFDDVV REIDTKSNQTFEDLHKAI HK
 YVISVSGG DYRFRVTFEDYE
VYKFRVIL DVKEDVFRDTMTQGEATLEDFHNVINQ IYRFRITFEDYE DVYRE: DMLSKQTFLELHEAI HK VYRFRVSFEDYDDVI REI DIKSNQTFKDLHYAHKK


RK■AVPHDAVLHDFAMS\|LD VYKYRVT LAGDK GFYRVYEMRGETTLYEFHKQMRA KVYHLKVSLFGYHEK乌HR\TETSENSTFEALHEATFE YRLKVYPAGLGGKVYRNLEICGQDTRDQLCDAVLE
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 SFGFDGTEMASFYLSNDQWDQGEEVSDGDDSDRDMNETSS AFGFDGTETGSFFTCEDDWT WNEEDEDPMFDTGDMADFKL LFGWAADQTWRVTYTHEKRDYTUEDKDIRDSQYVSPNDVQ SFGFDGSEMASFF $\square S D E K W N Q G E E L H Q F D M S G N D M N E T A L C$

AF GFDGMEAASFYACDDQWT Q DEDMGDTPGEHKTMSSTTI SFGFDGQEMASFYTSNDLWEEGEEMS DFDVSDEPMAETYL

MR IVCDNCERQSFDCNTD\RDMDTP
SFDRYDEH $\square Y$ SFF TT RKDTKSMEEMMGYGERKESTAKMQD CYHFTDYRDGSFGPEKSDSDDMVHDAQVGYKYLPDSKYML AFGFAGNEMASFYTSDDEWNQGDE SSLFDGSVRLMHNTTI


S $\square G Y D P E K S S S F Y A S N D Q W \square K N E E \square A Y \square P N Q V V L M E N S K L$ LFGWDGSHNYFFSHGSNRYRINDSTAARCRKIYRACDVPV AF DF D D D H L Y E F $\quad \square Y K$ N E Y G I E E S I S H P Y A D R T H E A D C P V


 A F GF D D H A H A F F M W S R R N C Y F M R D M E M E Y D G P S T

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100

120
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 D SVVVHEA Q T K L I Y V Y D F L S M WT FFFV EL A EIV E E T E G H D Y P
 N D L L H R R D S T K MVVYVY D F F S M WT F F L EL G A I E EN E D G E T Y P LA QV F P K F RVMI G Y G S N $\square$ G WEMEV L $\quad$ NT G S D S GP H S I


## I

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S E VVNE E S TKYLIYVYYDF

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KVLKAKNACPPEDCEGPSNYQQLRDПRR
EVLDGAGGTPPDQLTGTWHWADYLARASKSLSAKREAVIA NLMYVHGQ DPDDAPEKEFTGE TLLDGAETAPPEDVGGLPGFYEF पEVYRDEKHPEHEDMKV ELLFSH
NLMFVQGQ VPEEAPEK EF DAED DDDDDDDFDEEYD NVLESF GELPDSPPEKNFESDNPEGENFDDNYTDDLGS NILVKHGSVPEDAPERNFVAEDFNEFDSEFNDFE KLLKWKQDNLAEDAGNVWGYQE VA $\square A Q D E T H E D H K S M Q E$ KLI KSVGESPPQYPDYDDEEYE
EILDGKGACPGENMQGTYRYDDFLE LLKSPNYTGFAGKAS MLLFAHGNVPDEAPEKDF
VCLDGK $\square A A H P E D C G S \square P G Y Y Q C \square E V F E A A D E \square E K E R \square D$ DLLFS
NLMYSHGE $\square$ PEEAPEKEF TSEP ${ }^{\text {LDGDDDDDFDEEFD }}$ ETIFSH

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$V V K S M E A P K I$

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F V P E D

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QC I E GE GHGI $\square E D C G G \square Q G W Q A L L D A Y N T T P T K K Q W E R R K$ VCLDGSGHYI AEDAGGTRGWQELLKAAYRTTSNKEQREKRE PFIVESTGVNPEQYPDYE

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QVVEAK
$C$ T L SMGK
PRVVSN
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LRSQGK APEQ DMSN NLS DSMGEPSNNDDNDYDED DF VTHAEGKAPKQLAS $\square E E A A A R S A T P G G A D A W D E E V F D E D S$ CT

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EDGDEFDPEGF

SGLEDDDYDH
■DEGD DDLEGF D $\square$ AD A
FDAELNF

Y G DQDFD $\square$ DEFDPE
HFDEPLNLEEFNSE
LLDE $\square$ WDPN L F D $\square$ DATN

G LIF D P ERFVPAESN

W $\square \mathrm{GK} \mathrm{D} Y \square \mathrm{~N} N \square \mathrm{~L} \square \mathrm{ES} \square \mathrm{N}$

GHFDDFDYNEY
FDTEEFDPEGFE $\square$ SEGN
FDSDSFDLSELDAE

E G $\square$ T Q F D A E D CD
EFGDDFDFNDY
GVDEEDDYDMFD

E L DDEYNRVKFNRRRLN
ELDDDFVDEYSDYED

DAPEDGDPTAVDL

EFYEDYDDNEF

LD A E GF D
YGDETFDPSELDEE

WFERQPDPEAWDRDK $\square$ N

MT F G Q VEPERLD LRAD

FAAGS F
Y G DETYDPSELDEE
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UniRef90_D4LLU1 UniRef90-B0R8W0 UniRef90-G9ZI23 UniRef90-UPI00036F1612 UniRef90-K2RG79 UniRef90-H3NR16 UniRef90 R7YT84 UniRef90_UPI000478D68B UniRef90-UPIO00375EB80 UniRef90_D2W3P5



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